Clinico-pathological features in mice following oral exposure to Pasteurella multocida B: 2

ABSTRACT

Haemorrhagic septicaemia (HS) is a major cause of losses to livestock production in many countries around the world. In Malaysia, more specifically, the disease yet remains a major constraint to the national industry. However, the pathogenesis of haemorrhagic septicaemia is another scenario in which the limitations still exists. Thus, the present paper provides more information on the pathogenicity and host response dynamics in a mouse model. Our study of experimental nature manipulates P. multocida serotype B:2, the bacterium responsible for the disease in Asia. In this study, sixteen mice (n=16) were divided into two groups (A & B) of 8 mice each group. Animals in group A were inoculated orally with 1.0 ml 109 cfu/ml of P. multocida type B while mice in group 2 were challenged orally with 1.0 ml of phosphate buffer saline (PBS). The animals were observed for clinical signs for 5 days. The mice showing severe signs and surviving mice after 5 days of post- inoculation were euthanized using cervical dislocation approach and the organs such as heart, lung, kidney, stomach, spleen, colon and small intestine were collected for microscopic examinations. The result indicated that mice inoculated with the Pasteurella multocida showed significant ($p<0.05$) severe clinical signs compared to control group.These clinical signs ranged from mild to severe in which most of individuals infected with Pasteurella multocida showed moderate to severe clinical signs of ruffled hair, laboured breathing, eye discharge and responsiveness with mean levels of 2.13±0.64, 1.88±0.99, 1.50±1.20 and 1.88±0.99 respectively in comparison to the control group. Moreover, mortality rate was recorded between 24 to 50 h post-inoculation in the group that challenged with Pasteurella multocida type B: 2. Microscopically, the extent of visceral tissue damages due to the infection was scored. The interested parameters included pulmonary oedema, presence of inflammatory cells, haemorrhage and necrosis. Of these parameters, animals in infected group showed significant ($p<0.05$) differences in all most all visceral organs. Lungs, liver and kidney were, in particular, the most predominantly affected tissues. Therefore, oral inoculation of P. multocida type B in mice showed significant clinical response and cellular changes.

Keyword: Pasteurella multocida type B; Oral inoculation; Histopathology; Clinical signs; Mice